

**Marked-up Version of Amended Claims**

1. (Thrice Amended) A method of food product testing, such method including the steps of

taking a sample of a food product, the sample including at least one unprocessed foodstuff for preparation of the food product<sub>1</sub> [, and]

preparing the food sample for assay [of] for genomic material of a plurality of target species potentially present in the food product<sub>1</sub> [, and];

contacting the prepared food sample with an array of probes directed to multiple regions of genomic material for each of [a] the plurality of said target species;

11/2 forming an output distribution representative of each of the plurality of target species;

storing the output distribution in a database; and

mining the database to correlate the output distribution with predictive qualitative properties.

whereby the genomic material from the plurality of target species present in the food sample selectively hybridizes to the array of probes and the output distribution of target species present is used to predict food quality and processing conditions.

[such that said material hybridizes at loci of said array, to simultaneously detect genomic material from a plurality of said target species, and]

[forming an output distribution representative of the target species that are present in the food sample, wherein the target species include species affecting quality or processing of the food product such that the distribution enables effective adjustment of said processing.]

7. CANCELED.

14. (Thrice Amended) A testing method for food quality and processing comprising the steps of

preparing an array having plurality of probes directed to target sequences of each of a defined plurality of different target species wherein the target species include species affecting quality or processing of a food product;

preparing a sample of the food product, wherein the step of preparing a sample includes extracting DNA from the sample, including sequences of the species present in the sample;[,]

treating the extracted DNA with a PCR protocol effective to preferentially and simultaneously increase the level of target DNA sequences of the defined plurality of different target species;[, and]

hybridizing the amplified DNA to the probes on the array; [and]

forming an output distribution representative of the plurality of target species present in the sample; [such that the distribution enables effective adjustment of said processing.]

storing the output distribution in a database; and

mining the database to correlate the output distribution with predictive qualitative properties.

whereby the output distribution of target species present in the food sample can be correlated to extrinsic parameters so that predictions can be made regarding food quality and processing.

15. CANCELED.

16. CANCELED.

26. (NEW) The method of claim 1, wherein the qualitative properties are selected from the group comprising smell, texture, organoleptic properties, and taste.

27. (NEW) The method of claim 1, wherein the method further comprises correlating the output distribution with processing conditions.
28. (NEW) The method of claim 27, wherein processing conditions are selected from the group comprising quality and source of a component, flavor potential, and shelf-life.
29. (NEW) The testing method of claim 14, wherein the qualitative properties are selected from the group comprising smell, texture, organoleptic properties, and taste.
30. (NEW) The testing method of claim 14, wherein the method further comprises correlating the output distribution with processing conditions.
31. (NEW) The testing method of claim 30, wherein processing conditions are selected from the group comprising quality and source of a component, flavor potential, and shelf-life.

### REMARKS

The pending Final Office Action addresses claims 1-9, 14-21, and 23-25, rejecting all of the claims. Applicant herein amends claims 1 and 14 to better define the claimed invention. Additionally, by this amendment Applicant also adds new claims 26-31 and cancels 7, 15 and 16.

Independent claims 1 and 14 are amended to recite the steps of forming an output distribution representative of each of the plurality of target species, storing the output distribution in a database, and mining the database to correlate the output distribution with predictive qualitative properties are positively required. Support for these amendments can be found on page 2, 1<sup>st</sup> paragraph, lines 3-17; page 2, 2<sup>nd</sup> paragraph lines 4-7; and page 6, 3<sup>rd</sup> paragraph, lines 1-6 through page 7, 1<sup>st</sup> paragraph, line 1. Newly added claims 26 and 29 recite that the qualitative properties of claims 1 and 14, respectively, are selected from the group comprising smell, texture, organoleptic properties, and taste. Support for these amendments can be found on page 2, 1<sup>st</sup> paragraph, line 9. Newly added claims 27 and 30 recite that the methods of claims 1 and 14, respectively, further comprise correlating the output distribution with processing conditions. Support for these amendments can be found on page 2, 1<sup>st</sup> paragraph, line 10. Newly added claims 28 and 31 recite that the processing conditions are selected from the group comprising quality and source of a component, flavor potential, and shelf-life. Support for these amendments can be found on page 6, 3<sup>rd</sup> paragraph, lines 3-5. Accordingly, no new matter has been added by these amendments.

#### *Rejections under 35 U.S.C. § 102 and § 103*

The Examiner rejects claims 14, 17-20, and 23-25 under 35 U.S.C. § 102 (e) as being anticipated by Heynecker, U.S. Patent No. 6,057,100. The Examiner also rejects claims 14-21 and 23-25 under 35 U.S.C. § 103(a) as being unpatentable over Heynecker as applied to claims 14, 17-20, and 23-25 in view of Anderson, Bruckner-Lea et al., Bergeron et al., Nakayama et al., and Tauxe. Based on the amendments and the following remarks, Applicant respectfully requests reconsideration and withdrawal of the rejections under Heynecker.

Claim 14 is now amended to recite the steps of forming an output distribution representative of each of the plurality of target species, storing the output distribution in a database, and *mining the database to correlate the output distribution with predictive qualitative properties*. Applicant believes the requirement of mining the database to correlate the quantitative output distribution with predictive qualitative properties distinguishes over Heynecker. Heynecker fails to teach or suggest the predicting of *qualitative properties* through the mining of the database.

For the same reasons that Heynecker fails to satisfy the requirements of claim 14, Applicant respectfully submits that claims 15-21 and 23-25 are also not anticipated or rendered obvious by Heynecker. Since Heynecker fails to disclose the invention substantially as claimed, the deficiencies in Heynecker would not be overcome by its combination with Anderson, Bruckner-Lea et al., Bergeron et al., Nakayama et al., and Tauxe, as suggested by the Examiner.

In conclusion, Heynecker fails to meet all of the limitations of the claimed invention, particularly because Heynecker does not disclose a mining step capable of correlating the quantitative output distribution to *predictive qualitative properties*. Because Heynecker does not disclose or teach all of the limitations of the claimed invention, Applicant believes that Heynecker does not anticipate or render obvious the claimed invention and respectfully request that the Examiner reconsider and withdraw the rejections under Heynecker. 112/2

The Examiner rejects claims 1-9, 14-21 and 23-25 under 35 U.S.C. § 103(a) as being unpatentable over Heynecker, Anderson, Bruckner-Lea et al., Bergeron et al., Nakayama et al., and Tauxe as applied to claims 14-20 and 23-25 in view of Megerle, U.S. Patent 5,874,046. Based on the amendments and the following remarks, Applicant respectfully requests reconsideration and withdrawal of the rejections under Megerle.

Claims 1 and 14 are now amended to recite the step of *mining the database to correlate the output distribution with predictive qualitative properties*. Applicant believes the requirement of mining the database to correlate the quantitative output distribution representative of each of the plurality of target species present in a *food sample* with predictive qualitative food properties

substantially distinguishes over Megerle. The examiner pointed out, in the prior Office Action dated June 15, 2001, that "Megerle also teaches output distributions that include the presence of an organism and its location; such distributions are linked to a network so that decisions could be made based on this information (see column 4)." However, Applicant respectfully contends that the "network" taught by Megerle is substantially different from that of the present invention. Megerle teaches a "communications network...used to alert remote personnel to the threat of BWA's [biological warfare agents]" (see column 4, lines 8-10). Megerle fails to teach or suggest *predicting qualitative food properties* through the mining of the database.

For the same reasons that Megerle fails to satisfy the amended limitation to claims 1 and 14, Applicant respectfully submit that claims 2-9, 15-21 and 23-25 are also not anticipated or rendered obvious by Megerle. Since Megerle fails to disclose the invention substantially as claimed, the deficiencies in Megerle would not be overcome by its combination with Heynecker, Anderson, Bruckner-Lea et al., Bergeron et al., Nakayama et al., and Tauxe, as suggested by the Examiner.

In conclusion, Megerle fails to meet all of the limitations of the claimed invention, particularly because Megerle does not disclose a mining step capable of correlating the quantitative output distribution to *predictive qualitative properties*. Because Megerle does not disclose or teach all of the limitations of the claimed invention, Applicant believes that Megerle does not anticipate or render obvious the claimed invention and respectfully request that the Examiner reconsider and withdraw the rejections under Megerle.

The Examiner rejects claims 14, 17-20, and 23-25 under 35 U.S.C. § 102 (e) as being anticipated by Balch, U.S. Patent No. 6,083,763. The Examiner also rejects claims 1-9, 14-21 and 23-25 under 35 U.S.C. § 103(a) as being unpatentable over Balch as applied to claims 14, 17-20, and 23-25 in view of Megerle (U.S. Patent 5,874,046), Anderson, Bruckner-Lea et al. (1999), Bergeron et al., Nakayama et al., and Tauxe (1997). Based on the amendments and the following remarks, Applicant respectfully requests reconsideration and withdrawal of the rejections under Balch.

used a network for comm. info.  
didn't know of org. involved

Claims 1 and 14 are now amended to recite the step of *mining the database to correlate the output distribution with predictive qualitative properties.* Applicant believes the requirement of mining the database to correlate the quantitative output distribution representative of each of the plurality of target species present in a food sample with predictive *qualitative food properties* substantially distinguishes over Balch. Balch discloses methods of detection of microorganisms present in a sample; however, Balch does not teach or suggest the step of mining the database or correlated the presence of such microorganisms with *qualitative properties of food*.

For the same reasons that Balch fails to satisfy the amended limitation to claims 1 and 14, Applicant respectfully submit that claims 2-9, 15-21 and 23-25 are also not anticipated or rendered obvious by Balch. Since Balch fails to disclose the invention substantially as claimed, the deficiencies in Balch would not be overcome by its combination with Megerle (U.S. Patent 5,874,046), Anderson, Bruckner-Lea et al. (1999), Bergeron et al., Nakayama et al., and Tauxe (1997), as suggested by the Examiner.

In conclusion, Balch fails to meet all of the limitations of the claimed invention, particularly because Balch does not disclose a mining step capable of correlating the quantitative output distribution to *predictive qualitative properties*. Because Balch does not disclose or teach all of the limitations of the claimed invention, Applicant believes that Balch does not anticipate or render obvious the claimed invention and respectfully request that the Examiner reconsider and withdraw the rejections under Balch.

***Rejections under 35 U.S.C. § 112, 2<sup>nd</sup> paragraph***

Claim 1 is amended to recite that "the genomic material from the plurality of target species present in the food sample selectively hybridizes to the array of probes and the output distribution of target species present is used to predict food quality and processing conditions" to eliminate the language objected to by the Examiner.

Applicant hereby adds claims 26 and 28 to depend from claim 1 to further define the claimed terminology in claim 1. Claim 26 recites "the qualitative properties are selected from

the group comprising smell, texture, organoleptic properties, and taste." Claim 28 recites that the "processing conditions are selected from the group comprising quality and source of a component, flavor potential, and shelf-life."

Claim 14 is amended to recite that "the genomic material from the plurality of target species present in the food sample selectively hybridizes to the array of probes and the output distribution of target species present is used to predict food quality and processing conditions" to eliminate the language objected to by the Examiner.

Additionally, Applicant hereby adds claims 29 and 31 to further define the claimed terminology in claim 14. Claim 29 recites "the qualitative properties are selected from the group comprising smell, texture, organoleptic properties, and taste." Claim 31 recites that the "processing conditions are selected from the group comprising quality and source of a component, flavor potential, and shelf-life."

By these amendments, Applicant has removed the language objected to by the Examiner. Applicant believes these amendments satisfy all of the Examiner's concerns. The Examiner is kindly asked to reconsider and withdraw these rejections.



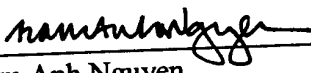
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For all of the foregoing reasons, Applicant submits that claims 1-6, 8-9, 14, 17-21, and 23-31 are now in condition for allowance, and respectfully request a notice of allowance for these claims. In the event that the amendments and remarks are not deemed to overcome the grounds for rejection, the Examiner is kindly requested to telephone the undersigned representative to discuss any remaining issues.

Respectfully submitted,

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